

## CLAIMS

What is claimed is:

1. A method for providing feedback regarding the quality of a communication channel which is transmitted between a transmitter and a receiver; the method comprising:

transmitting a control communication from said transmitter to said receiver, said control communication including information regarding the allocation of resources in a subsequent downlink communication;

receiving at said receiver said control communication and awaiting said downlink communication;

transmitting from said transmitter said downlink communication over a downlink channel;

receiving at said receiver said downlink communication;

performing at said receiver at least one current measurement on said downlink communication to determine the current quality of said downlink channel;

deriving, based on said performing step, a channel quality indication (CQI); and

transmitting said CQI from said receiver to said transmitter; whereby said deriving step estimates the future quality of said downlink channel to derive said CQI.

2. The method of claim 1, further including storing said at least one current measurement.

3. The method of claim 2, wherein said deriving step further includes retrieving at least one stored measurement and utilizing said at least one stored measurement and said at least one current measurement to derive said CQI.

4. The method of claim 1, further including storing said CQI.

5. The method of claim 1, wherein said deriving step utilizes a linear predictive algorithm to derive said CQI.

6. The method of claim 1, wherein said downlink communication comprises at least one data communication.

7. The method of claim 1, wherein said downlink communication comprises at least one pilot communication.

8. The method of claim 1, wherein said downlink channel comprises a plurality of downlink channels on which said measurements are performed.

9. The method of claim 8, wherein said plurality of downlink channels includes at least one data channel on which said measurements are performed.

10. The method of claim 8, wherein said plurality of downlink channels includes at least one pilot channel on which said measurements are performed.

11. The method of claim 8, wherein said plurality of channels includes at least one pilot channel and at least one data channel on which said measurements are performed.

12. A method for providing channel quality measurements on a downlink communication channel transmitted from a receiver to a transmitter; the method comprising:

monitoring said downlink communication channel at said receiver;  
performing at least one current measurement on said downlink communication channel;  
deriving an indicator of the quality of the downlink communication channel; and

transmitting said indicator to said transmitter;

whereby said deriving step predicts the future quality of the downlink communication channel.

13. The method of claim 12, further including storing said at least one current measurement.

14. The method of claim 13, wherein said deriving step further includes retrieving at least one stored measurement and utilizing said at least one stored measurement and said at least one current measurement to derive said CQI.

15. The method of claim 12, further including storing said CQI.

16. The method of claim 12, wherein said deriving step utilizes a linear predictive algorithm to derive said CQI.

17. The method of claim 12, wherein said downlink communication channel comprises at least one data channel.

18. The method of claim 12, wherein said downlink communication channel comprises at least one pilot channel.

19. The method of claim 12, wherein said downlink communication channel comprises a plurality of downlink channels on which said measurements are performed.

20. The method of claim 19, wherein said plurality of downlink channels includes at least one data channel on which said measurements are performed.

21. The method of claim 19, wherein said plurality of downlink channels includes at least one pilot channel on which said measurements are performed.

22. The method of claim 19, wherein said plurality of downlink channels includes at least one pilot channel and at least one data channel on which said measurements are performed.

23. A method for providing channel quality measurements on a downlink communication channel transmitted from a receiver to a transmitter; the method comprising:

monitoring said communication channel at said receiver;

performing at least one current measurement on said communication channel;

deriving an indicator of the quality of the communication channel; and

transmitting said indicator to said transmitter;

whereby said deriving step predicts the future quality of the communication channel.

24. The method of claim 24, further including storing said at least one current measurement.

25. The method of claim 24, wherein said deriving step further includes retrieving at least one stored measurement and utilizing said at least one stored measurement and said at least one current measurement to derive said CQI.

26. The method of claim 23, further including storing said CQI.

27. The method of claim 23, wherein said deriving step utilizes a linear predictive algorithm to derive said CQI.

28. The method of claim 23, wherein said communication channel comprises a plurality of channels on which said measurements are performed.

29. The method of claim 28, wherein said plurality of channels includes at least one data channel on which said measurements are performed.

30. The method of claim 28, wherein said plurality of channels includes at least one pilot channel on which said measurements are performed.

31. The method of claim 28, wherein said plurality of downlink channels includes at least one pilot channel and at least one data channel on which said measurements are performed.